

Appl. No. : 10/722,367
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AMENDMENTS TO THE CLAIMS

The listing of claims replaces all prior versions and listings of claims. Only those claims being amended herein show their changes in highlighted form, where insertions appear as underlined text (e.g., insertions), while deletions appear as strikethrough text (e.g., ~~deletions~~) or enclosed in double brackets (e.g., ~~[[deletion]]~~).

1. (Currently Amended) A bifurcation graft deployment system, comprising:

an elongate, flexible catheter body, having a proximal end and a distal end and comprising an outer sheath and an inner core that is axially moveable with respect to the outer sheath and an atraumatic distal tip coupled to the inner core and positioned adjacent the distal end of the catheter body;

a bifurcated graft comprising a main vessel portion, a first branch vessel portion, and a second branch vessel portion;

a main vessel graft restraint comprising a first peelable cover for restraining ~~the~~the~~[[a]]~~ main vessel portion of ~~the~~the~~[[a]]~~ bifurcated graft;

a first branch vessel graft restraint, for restraining ~~the~~the~~[[a]]~~ first branch vessel portion of the graft; and

a second branch vessel graft restraint, for ~~restraining~~restraining ~~the~~the~~[[a]]~~ second branch vessel portion of the graft;

wherein the first peelable cover is coupled to a main branch release element and wherein each of the bifurcated graft, main vessel graft restraint, first branch vessel graft restraint, and the second branch vessel graft restraint are positioned within the catheter body in a graft loaded condition in an orientation such that the main vessel portion is positioned nearer to the distal end of the catheter body than either the first branch vessel portion or the second branch vessel portion.

2. (Original) A deployment system as in Claim 1, wherein the main branch release element comprises an elongate, flexible, axially moveable release element extending through the catheter.

3. (Original) A deployment system as in Claim 1, wherein the first branch vessel graft restraint comprises a first tubular sleeve.

4. (Original) A deployment system as in Claim 3, wherein the first tubular sleeve is coupled to the inner core.

5. (Original) A deployment system as in Claim 1, wherein the first branch vessel graft restraint comprises a second peelable cover.

6. (Original) A deployment system as in Claim 5, wherein the second peelable cover is attached to a first branch release element comprising an elongate, flexible, axially moveable release element also extending through the catheter.

7. (Original) A deployment system as in Claim 1, wherein the second branch vessel graft restraint comprises a tubular sleeve.

8. (Original) A deployment system as in Claim 7, wherein the tubular sleeve is attached to a second branch release element comprising an elongate, flexible, axially moveable release element.

9. (Original) A deployment system as in Claim 8, wherein the catheter is configured to enter through a first percutaneous puncture site and the second branch release element is configured to exit through a second percutaneous puncture site.

10. (Currently Amended) A deployment system for deploying a bifurcated prosthesis at the junction of a main vessel and first and second branch vessels, comprising:

a delivery catheter having an inner core, an outer sheath and a distal tip that is coupled to the inner core, the inner core being slidably engaged within the outer sheath; and

a bifurcated prosthesis having a main body section with proximal and distal ends, and first and second branch sections at the proximal end of the main body section, wherein the main body section is held in a radially compressed state by a first peelable cover, the first branch section is held in a radially compressed state within a first tubular cover and the second branch section is also held in a radially compressed state within a second tubular cover, wherein the compressed bifurcated prosthesis is positioned within the outer sheath such that the distal end of the bifurcated prosthesis is positioned nearer to the distal tip of the delivery catheter.

11. **(Original)** The deployment system of Claim 10, wherein the bifurcated prosthesis further comprises an expansion spring having an apex and first and second leg portions, wherein the leg portions are connected to respective first and second branch sections.

12. **(Original)** The deployment system of Claim 10, wherein the first tubular cover is a peelable cover.

13. **(Original)** The deployment system of Claim 10, wherein a distal end of the outer sheath includes an RO marker.

14. **(Original)** The deployment system of Claim 13, wherein the RO marker comprises a band of RO material.

15. **(Original)** The deployment system of Claim 10, further including means for marking a distal end of the outer sheath with RO material.

16-23. **(Canceled)**

24. **(Currently amended)** A straight tube graft deployment system, comprising:
an elongate, flexible catheter body, having a proximal end and a distal end and comprising an outer sheath and an inner core that is axially moveable with respect to the outer sheath, the catheter body further comprising a distal tip positioned near the distal end of the catheter and being coupled to the inner core;

a self-expandable straight tube graft positioned in a compressed state within the distal end of the flexible catheter tubular body;

a first graft restraint comprising a first peelable cover for restraining at least a first portion of [[a]] the straight tube graft;

wherein the first peelable cover is coupled to a first release element and wherein the first graft restraint is positioned within the catheter body in a graft loaded position.

25. **(Currently Amended)** A deployment system as in Claim 24, wherein the first branch-release element comprises an elongate, flexible, axially moveable release element extending through the catheter.

26. **(Original)** A deployment system as in Claim 24, wherein the deployment system further comprises a second graft restraint comprising a second peelable cover for restraining a second portion of the straight tube graft.

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27. **(Original)** A deployment system as in Claim 26, wherein the second peelable cover is attached to a second release element comprising an elongate, flexible, axially moveable release element extending through the catheter.

28-30. **(Canceled)**